

CLAIMS:

1. An exhaust system (10) for a lean burn internal combustion engine, which system
5 comprising a particulate filter (12) disposed between an inlet (18) and an outlet and means for deflecting at least some exhaust gas flowing in the system away from entering the filter at a point immediately opposite the inlet.
2. An exhaust system according to claim 1, wherein the deflecting means comprises
10 a deflector (14) disposed on the inlet side of the filter, which deflector comprising an upstream end having a first cross sectional area and a downstream end having a second cross sectional area, wherein the second cross sectional area > the first cross sectional area.
3. An exhaust system according to claim 2, wherein the deflector is in the shape of a
15 cone or a frusto-cone.
4. A system according to claim 2 or 3, wherein the deflector comprises a flow
through substrate comprising at least two channels.
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5. A system according to claim 4, wherein the cross sectional area of each channel on the outlet substrate end is greater than on the inlet substrate end.
6. A system according to claim 4 or 5, wherein the channels converge towards a
25 point on the inlet side of the substrate.
7. A system according to claim 4, wherein the at least two channels are parallel to one another.
8. A system according to claim 2 or 3, wherein the deflector comprises an outer
30 surface for deflecting the exhaust gas.
9. A system according to claim 8, wherein the outer surface includes at least one aperture for exhaust gas to flow through.

10. A system according to any of claims 3 to 9, wherein the cone or frusto-cone is squashed in at least one dimension about a central, longitudinal axis.

5 11. A system according to any of claims 2 to 10, wherein the deflector is made of a metal.

12. A system according to any of claims 2 to 11, wherein the deflector comprises a catalyst.

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13. A system according to claim 12, wherein the catalyst is for oxidising NO in the exhaust gas to NO₂.

14. A system according to claim 12 or 13, wherein the catalyst comprises an optionally supported at least one platinum group metal (PGM).

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15. A system according to claim 14, wherein the PGM comprises platinum.

16. An exhaust system according to any preceding claim, wherein the deflecting means comprises a lateral washcoat gradient on the filter, whereby the backpressure in a region of the filter immediately opposite the inlet > backpressure in an area peripheral to said region.

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17. An exhaust system according to any preceding claim, wherein the deflecting means comprises lateral gradient of catalyst loading on the filter, whereby the catalyst loading in a region of the filter immediately opposite the inlet < catalyst loading in an area peripheral to said region.

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18. An exhaust system according to claim 17, wherein the catalyst comprises at least one PGM, optionally platinum.

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19. A system according to any preceding claim, wherein the inlet is immediately opposite the centre of the filter.

20. A system according to any preceding claim, wherein the filter is a wall-flow filter.
- 5 21. A system according to any preceding claim, wherein the filter is of non-circular cross-section.
22. A system according to any preceding claim, wherein the shape of the deflector in cross-section is the same as, or similar to, the shape of filter in cross-section.
- 10 23. A system according to any preceding claim, wherein the filter comprises a catalyst.
24. A system according to claim 23, wherein the catalyst comprises an optionally supported at least one PGM.
- 15 25. A system according to claim 24, wherein the PGM includes platinum.
26. An internal combustion engine including an exhaust system according to any preceding claim.
- 20 27. An engine according to claim 26, wherein it is a diesel engine.
28. A method of more evenly distributing particulate matter in a flowing exhaust gas across a particulate filter disposed in an exhaust system, which method comprising deflecting at least some exhaust gas flowing in the system away from entering the filter at a point immediately opposite an inlet.
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